STEWART COMPANY GRAIN ELEVATOR
16 West Carson Street
Pittsburgh
Allegheny County
Pennsylvania

HAER No. PA-381

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, P.A.19106

HAER
PA
2-PITBU,
68-

HISTORIC AMERICAN ENGINEERING RECORD

STEWART COMPANY GRAIN ELEVATOR

HAER NO. PA-381

Location: 16 West Carson Street
Pittsburgh
Allegheny County, Pennsylvania
UTM: 17.583260.4476850
Quad: Pittsburgh West, PR1979 1:24,000

Date of Construction: 1913/1928/1945

Builder: D.G. Stewart Grain Company
Jesse C. Stewart Company

Present Owner: Jesse C. Stewart Company
Pittsburgh, Pennsylvania

Present Use: Grain elevator

Significance: The 1913 grain elevator replaced an earlier elevator on the same site and was the first concrete grain elevator in Pittsburgh. A rail siding connected the structure to the Panhandle Division of the Pennsylvania Railroad. In 1945, a second elevator was built adjacent to the earlier structure. The Stewart Company Grain Elevator continues to function using some machinery dating from the 1913 and 1945 buildings. The elevator is a rare survivor of Pittsburgh's grain processing industry.

Project Information: During construction of the Phase I Airport Busway/Wabash HOV facility, the Port Authority of Allegheny County proposes a Federal Transit Administration project (PA 03-0227) to replace the grain elevator with a transit station. In a Memorandum of Agreement signed in 1994, the State Historic Preservation Officer stipulated documentation of the building. A National Register of Historic Places nomination form has been prepared for the Stewart Company Grain Elevator.

Christine Davis and Frank Kurtik
Christine Davis Consultants, Inc.
560 Penn Street
Verona, PA 15147

Introduction

The Stewart Company Grain Elevator functions as a grain processing facility, office and warehouses located in the City of Pittsburgh, Pennsylvania. The structure adjoins a siding of the former Panhandle Division of the Pennsylvania Railroad on the south and fronts West Carson Street on the north. The facility is constructed on a narrow shelf of land at the base of a tall bluff known as Mt. Washington. An active railroad line, now operated by CONRAIL, serves the grain elevator from a single-track rail siding. Situated immediately to the east of the elevator is an inclined plane, known as the Duquesne Incline, which provides passenger access to Mt. Washington and is not associated with the grain elevator.

The Stewart Company elevator functioned as a storage and processing facility for grain delivered by both railroad and truck. The original grain processing buildings on the site, dating to 1873, were demolished after a fire and the owner subsequently rebuilt the facilities. The property now consists of four adjoining buildings which represent three successive construction phases. The building complex consists of a 1913 concrete grain elevator, a 1928 four-story red brick warehouse, a 1945 concrete grain elevator, and a 1945 four-story concrete and brick warehouse. The concrete ruins of a 1945 warehouse are located west of the 1945 grain elevator.

Today, the Stewart Company Grain Elevator involves 1.06 acres of land currently owned by Jesse C. Stewart Company. The company's red "S" logo is prominently painted on the east side of the 1913 elevator. The grain elevators and processing plant continue to function with vehicular access from West Carson Street and access by Conrail through a railroad siding from the mainline to a set of bays on the south side of the building.

Founding of the D.G. Stewart Grain Company

The Stewart Company Grain Elevator was established by David Glenn Stewart who was born in Pittsburgh in 1839. Stewart engaged in the steamboat trade in Alabama, the oil business in Ohio, and eventually served as a clerk in the War Department in Washington, D.C. That Stewart was a successful businessman is apparent in the fact that not only did he operate the grain elevator, but he also came to serve as Vice President of the Western National Bank and President of the Fourth National Bank, both of Pittsburgh. [1] In 1880, Stewart married the former Jennie L. Nimick, whose family was among the owners of Singer, Nimick & Company, a steel works then located on West Carson Street very near the site of the elevator. [2] The land for the grain elevator is located on land formerly owned by Singer, Nimick & Company.

D. G. Stewart founded the D. G. Stewart Elevator and Feed Mill in 1873. Stewart and William Boyd applied for a permit to build a two-story frame building measuring 40 feet in length, 75 feet in depth, and 40 feet in height. The estimated cost for construction was $9,000. At that time, the elevator had a capacity of 50,000 bushels of grain stored in 20 large bins and seven small bins. While two runs of millstones ground grain for feed, a corn cleaner was also part of the elevator's operations. Motive power for the elevator's belt-driven machinery was provided by a coal-fueled 20-horsepower steam engine housed in a small attached powerhouse. Kerosene lights provided illumination for the workers in the elevator. [3]

No 19th century records of the elevator company are extant but it can be surmised that it was an increase in the volume of business and the expansion of the railroad to a double-track system that caused the original frame structure of 1876 to be replaced by a much larger elevator in the early-1880s. The former Pittsburgh and Steubenville Railroad, first organized in 1849, provided access to the grain elevator. The line was later consolidated with two other lines from West Virginia and Ohio to create the Pittsburgh, Cincinnati and St. Louis Railway. Although finally taken over by the Pennsylvania Railroad, the line continued to be known locally as the "Panhandle".

In 1883, the Panhandle Division laid 397 feet of new track at Stewart's Grain elevator to provide improved rail access for the company. At that time, the railroad report commented that the elevator was "new". [4] Of iron-clad construction known as the Iron City Grain Elevator, Stewart's new facility had a capacity of 300,000 bushels of grain. [5] At that time, a grain elevator system and two corn cleaners were present in the iron-clad buildings. The power source for the company continued to be a coal-fired steam engine, but a 60-horsepower engine replaced the previous smaller engine and lard oil torches replaced the kerosene lights. [6]

Tenement Housing at the Grain Elevator

Like many prominent businessmen in Pittsburgh who owned property during the unprecedented expansion of the iron and steel industry, D. G. Stewart constructed tenement housing adjacent to his firm's facilities. The increase in immigration to the Pittsburgh area in the late nineteenth and early twentieth centuries resulted in a serious shortage of workers' housing. Congested lowland areas along the rivers served as sites for both workers' housing and heavy industry. Boarding houses often were operated on a double shift basis with beds successively occupied by different workers according to their night or day shifts. Sanitation was a major problem with fifty percent of all young foreign-born workers

contracting typhoid within two years of their arrival in Pittsburgh. [7] By the 1880s, the Stewart Company constructed two tenement rows which bracketed the grain elevators. A series of six three-story semi-detached tenements and a small outdoor baking oven were located between the elevator and the Duquesne Incline by 1884. [8] In 1892, Stewart applied for permits to build two new tenement buildings and in the following year, four two-story semi-detached tenements were added west of the grain elevator near the old power house. [9] By 1901, four additional units were built adjacent to the tracks [10] and were reportedly owned by Mrs. Stewart. These tenements were still standing in 1924 [11] and may have been part of Mrs. Stewart's landholding before her marriage. Once the tenements were leveled, a wood and concrete block warehouse was constructed on the site. This building was demolished in the 1980s.

Construction of the 1913 Grain Elevator

By the turn of the 20th century, the majority of the nation's grain elevators were constructed of brick and covered with corrugated sheet iron roofs. Yet, in Europe it was common for elevators to have steel support systems embedded in concrete. In 1899, Minnesota builder and engineer, Charles F. Haglin, developed the first reinforced concrete slip-form grain elevator. In the United States, there were fire-proof buildings separating the steel storage bins and the machinery with pneumatic cross and transverse conveyors to handle the grain between the buildings. [12] By 1907, five materials were used to construct grain elevators, including timber, steel, concrete, tile and brick. Timber cribbing was used for the original grain elevators that D. G. Stewart built in 1873 and in the 1880s. As one would expect, the susceptibility of wood to destruction by fire posed the most significant drawback to timber construction, resulting in high fire insurance premiums. In 1906, D. G. Stewart entered into a partnership with J. A. A. Geidel and the firm became known as Stewart and Geidel. Five years later, in 1911, the grain elevators and feed mill were destroyed by fire.

On the site of the original grain elevator and feed mill, the firm built Pittsburgh's first concrete grain elevator in 1913, "setting the pace for better things in elevator construction." The machinery and handling facilities of the elevator placed the elevator in the "front rank of elevators of the same size." Reinforced concrete was used to construct the walls of the new building and interior columns. The machinery and equipment were installed with regard to dust control, cleanliness and the fire hazards of grain elevators. The new concrete elevator was only one-third the size of the original elevator and had one-half the capacity. [13] This fireproof grain elevator had a capacity of

130,000 bushels when constructed. [14] At this time, the first story functioned as a cleaning floor for grinding, shelling, sacking, and local shipping of materials onto West Carson Street. [15] The railroad siding on the south side of the building brought rail cars for the loading and unloading of grain and grain products.

The feed manufacturing industry saw major growth in the 1890s as a response to the increasing consumer demand for meat products which in turn gave rise to a significant increase in the transport of cattle by rail. At the same time, feedlot management saw the development of scientific diets for confined animals. Although basic grain and grain by-products served as the basis for animal feeds, from twenty to thirty ingredients came to be additives to some formulas. [16]

Jesse C. Stewart Company Acquires the Elevator

The Jesse C. Stewart Company acquired the grain elevator complex ca. 1919. [17] From the company's main office, located at 500 S. Aiken Avenue in Pittsburgh, the firm administered its flour, feed, grain and sugar business beginning in 1898. [18] By 1924, the company demolished its tenements between the elevator and the Duquesne Incline to provide space for the Union Storage Warehouse, a brick building which stood in the footprint of the former residential housing. Four years later, the Stewart Company built a four-story office building adjacent to the grain elevator, [19] and shortly afterwards, a one-story red brick garage fronting on West Carson Street.

The Stewart grain elevator continued in operation as a small single elevator, handling two to four railroad cars of corn, wheat, oats, rye and barley each day until World War II ended. [20] Within months of the end of the war, the Stewart Company prepared plans to add a new grain elevator and a four-story warehouse to the West Carson Street facility. The adjacent Union Storage Company Warehouse number six, on the east side of the elevator, was demolished and replaced with a four-story brick and concrete warehouse building. On August 24, 1945, the company solicited bids for the building which was to measure 75 feet in length along West Carson Street and approximately 60 feet in depth. [21] A second concrete block warehouse was constructed on the west side of the building, but was demolished and is now in ruins.

Construction of the 1945 Elevator

In 1945, a series of detailed bids, specifications, and plans preceded the selection of construction companies, machinery manufacturers and other products for the new grain elevator. The Groomes Construction Company of Springdale, Pennsylvania served as

the general construction contractors. Local companies submitting bids for the work included the Pittsburgh-Des Moines Steel Company and McAleenan Brothers Company who bid on the molasses tanks, and R. Munroe and Sons who bid on the welded steel tanks. [22] The Webster Manufacturing Inc. of Pittsburgh provided the back leg idler and boot hopper intakes. The Stephens-Adamson Manufacturing Company supplied the screw conveyors and the loop boot Redler elevator.

The Trimble Construction Company excavated the foundation for the new 40 by 80 foot grain elevator which housed fifteen silos and eight center compartments. The new elevator's capacity was approximately 100,000 bushels. In September 6, 1946, an inspection of the "concrete poured on the walls, beams, columns, etc. of the grain elevators" was approved. [23] Electric motors powered eleven machines on the fourth floor including two corn graders, a corn feed mill, corn elevator and conveyor, scratch feed cleaner, mash sifter, oat conveyor, meat grinder, meat cracker and molasses mixer. On the third floor were the chicken feed mill, a corn cutter, batch mixer, mash mill, three belt conveyors and a dairy sewing machine and bag filler. Three machines - a hammer mill, knife grinder and drill press - on the second floor also were powered by electric motors. The first floor contained three trition mills, scratch feeders, two hammer mills, conveyors and a molasses pump. [24]

Grain was carried from the unloading area on the rail siding on the south side of the elevator by a belt conveyor. The 1913 elevator used power shovels attached to the belt to tip the grain into the turnhead spouts of the cupola at the top of the elevator. These shovels were later replaced by an Elba winch dozer. From the spouts, gravity moved the grain into the garners and then to the weighing machine hoppers. The Richardson Scale Company of Clifton, New Jersey supplied weighing machines for the 1945 elevator. Two manual scales, each holding 80,000 pounds of grain and located in the 1913 head house, are used to supplement the newer scales. After weighing, the grain moves by gravity to a conveyor which transfers grain for cleaning. After cleaning, grain is conveyed from the grain cleaners through a system of spouts to the storage bins. A chain drag moves grain from the 1945 elevator to the 1913 elevator. In the 1913 elevator, there are 19 bins, while the 1945 elevator has 16 bins, all of which separate the different varieties of grain. Corn, oats, wheat, bran, soybean, middlings, distiller's grain, linseed and brewer's grain are stored in these bins. In addition to a variety of feed and grain products, the Stewart Company provided sound cultivated grain for distilleries and also for race horse feed. This very pure grain passed through a special series of sized screens in the grain cleaners.

Bagging operations took place in the head house of the 1913

elevator where the grain was conveyed from the bins. There, the grain was placed on the sacking scale where it was bagged. The open tops of the bags were then sewn at the sewing machine. The bagged grain passed through the discharge spout of the grain bins. Bags of grain were moved to the third level for loading onto rail cars. Bagging operations now take place on the first floor of this building.

On the west side of the building is the 1945 grain elevator of reinforced concrete with a series of narrow windows near the top of the building. The first story of the north side of the building has a loading dock with four bays for shipping and receiving by truck from West Carson Street. The loading bays are covered by a large, flat-roof overhang supported by metal braces anchored to the side of the structure. On the south side of the elevator, an active railroad siding provides a connection with the CONRAIL main line. This siding, located on the site of the former Panhandle siding, is next to a second (and now abandoned) siding. A motor-driven car-puller drags the railroad cars to the correct position for loading and unloading. This ca. 1913 machine has a seven-foot flywheel encased in a concrete vault in the basement of the 1913 grain elevator.

CONRAIL, on a route that was formerly the Panhandle Division of the Pennsylvania Railroad, continues to deliver grain to the siding adjacent to the Stewart elevator. Here, metal canopies, fabricated by Standard Metal Products of Braddock, Pennsylvania in 1945, cover the wood platforms. Rock-faced sandstone railroad abutments of the Panhandle Railroad have been integrated into the south walls of the 1913 grain elevator and 1928 warehouse.

Significance

The Stewart elevator was one of numerous small elevators located along the railroad lines across the country. By 1901, Stewart's Iron City Grain Elevator, at 16 West Carson Street, was one of only two grain elevators in Pittsburgh. The second elevator, the Central Elevator Company, was located at 11th Street and Duquesne Way. [25] In 1907, the Harper Grain Elevator (later the Pittsburgh Elevator Corporation) at the Sheraden rail yard in the city's West End became the second elevator on the Panhandle Railroad and the third elevator in Pittsburgh. [26] The original wood elevator on that site later was replaced by a concrete structure. Although the Panhandle primarily carried bituminous coal, a significant volume of grain, flour and mill products were transported on the line. For example, in 1917, nearly 2.5 million tons of such products were carried on the Panhandle. [27]

The 300,000 bushels capacity of the Stewart grain elevators can be contrasted to the mammoth grain elevators at Minneapolis, Duluth

and Chicago which each had a capacity of up to five million bushels. In the early 1900s, the total annual capacity of grain elevators in these three cities was 70 million bushels. The size of the average grain elevator was 283 feet in length, 85 feet in width and was 150 feet high (Beach 1906), or more than twice the size of the Stewart Elevator.

The Stewart Company Grain Elevator represents a building type rare in the Pittsburgh area and is significant for its role in the grain processing industry. Continuously, since 1873, this site on the former Panhandle Railroad has served for the storage and processing of grain and associated products. This assembly of buildings is an example of early 20th century industrial architecture that retains integrity of location, design, materials and workmanship. Reinforced concrete grain elevators are a building type identified by noted architectural historian Reyner Banham as being influential on the European architects whose writings and buildings shaped the International Style. The elevator was the first concrete grain elevator built in Pittsburgh and the only one to remain extant. Machinery from the 1944/1945 expansion of the elevator and of the 1913 elevator remain intact. Todaym the Jesse C. Stewart Company continues to receive grain by rail and to process grain and bag grain products in the elevators on West Carson Street.

REPOSITORIES

The Jesse C. Stewart Company exhibits three historic photographs of the grain elevator taken in the early 20th century in its Pittsburgh office. Housed in the office at the grain elevator were a series of letters, blueprints and contracts relating to the construction of the new grain elevator in 1945 and 1946. These documents were organized and placed in acid- free folders. William Ryan, Jr., of the Jesse C. Stewart Company, was interviewed in June of 1995 when the Company graciously agreed to donate these records to the Historical Society of Western Pennsylvania.

Other repositories searched for information include: the Library of Congress, the Carnegie Library of Pittsburgh, Hillman Library and Darlington Library (both of the University of Pittsburgh), the library of The Historical Society of Western Pennsylvania, the Pattee Library of The Pennsylvania State University, and the Pennsylvania State Archives.

ENDNOTES

1. Pittsburgh Press Club. Prominent Men of Pittsburgh and Vicinity: Members of Pittsburgh Press Club 1912-1913. Pittsburgh. 1913.

2. Jordan, John. Encyclopedia of Pennsylvania Biography. New York: Lewis Historical Publishing Company. 1907. Vol. III:947-949.

3. Sanborn, 1884.

4. Sixteenth Annual Report of the Board of Directors of the P.C and St.L. Railway Company for the Year Ending 1883. Review Printing House, Philadelphia, 1884. p. 95.

5. Jordan, p. 949.

6. Sanborn Insurance Map, 1883.

7. Christine Davis Consultants. Phase I Archaeological Survey of the Airport Busway/Wabash HOV, Allegheny County, Pennsylvania. Pittsburgh: Port Authority Transit of Allegheny County, 1994.

8. Sanborn, 1884.

9. Sanborn, 1893.

10. Hopkins, 1901.

11. Sanborn, 1924.

12. Beach 1906; Frame 19.

13. Jordan, p. 948.

14. Sanborn, 1924.

15. Jordan, p. 948.

16. Catania, Patrick J., editor. Grains. Chicago: Chicago Board of Trade, 1992.. p. 134-5.

17. William Ryan, Jesse C. Stewart Company. Personal interview, June 1995. The relationship, if any, between Jessie Stewart and D.G. Stewart has not been established. D.G. Stewart had one son, a lawyer named Glenn, and the name Jesse does not

appear in D.G.'s biography.

18. Jesse C. Stewart Company, Historic photographs located in company office in Pittsburgh.

19. Jesse C. Stewart Company Papers. Letter from The Trimble Company to Jesse C. Stewart Company, dated August 24, 1945.

20. Jesse C. Stewart Papers. Letter dated September 5, 1944 from Stewart to The Day Company.

21. Jesse C. Stewart Company Papers. Letter from The Trimble Company to Jesse C. Stewart Company, dated August 24, 1945.

22. Jesse C. Stewart Papers. Letter from Jesse C. Stewart to Pittsburgh Des Moines Steel Company on May 26, 1945 approving purchase of molasses tanks.

23. Jesse C. Stewart Company Papers. Letter to Jesse C. Stewart Company from Groomes Construction Company. September 6, 1946.

24. Jesse C. Stewart Company Papers. Letter to Jesse C. Stewart Company from Groomes Construction Company. September 6, 1946.

25. Polk Directory of the City of Pittsburgh. 1901

26. Christine Davis Consultants. Determination of Effect Report for the Airport Busway/Wabash HOV, Allegheny County, Pennsylvania. Pittsburgh: Port Authority Transit of Allegheny County, 1994.

27. Pittsburgh, Cincinnati, Chicago and St. Louis Railroad Company. First Annual Report for the year ended December 31, 1917. Office of the Secretary, Pittsburgh, Pa. 1918.

BIBLIOGRAPHY

Banham, Reyner. A Concrete Atlantis: U.S. Industrial Building and European Modern Architecture, 1900-1925. Cambridge, Mass: The MIT Press, 1986.

Beach, Frederick Converse, editor. The Americana, A Universal Reference Library. Scientific American Compiling Department, New York. 1904-06

Christine Davis Consultants. Phase I Archaeological Survey of the Airport Busway/Wabash HOV, Allegheny County, Pennsylvania. Pittsburgh: Port Authority Transit of Allegheny County, 1994.

Christine Davis Consultants. Determination of Effect Report for the Airport Busway/Wabash HOV, Allegheny County, Pennsylvania. Pittsburgh: Port Authority Transit of Allegheny County, 1994.

Christine Davis Consultants. Determination of Eligibility Report for the Airport Busway/Wabash HOV, Allegheny County, Pennsylvania. Pittsburgh: Port Authority Transit of Allegheny County, 1994.

Frame, Richard M. The WCCO Elevator Houses No. 2 & No. 3: A Report on the Study of Re-use Possibilities for Two Reinforced-Concrete Grain Elevators. Minnesota: Preservation Alliance of Minnesota and the State Historic Preservation Office. 1989.

Hopkins. G.M. Map of Greater Pittsburgh. Philadelphia:G.M. Hopkins Company. 1901, 1910.

Jesse C. Stewart Company. Unpublished papers. Historical Society of Western Pennsylvania.

Jordan, John. Encyclopedia of Pennsylvania Biography. New York: Lewis Historical Publishing Company. Vol. III:947-949.

Ketchum, Milo S., C.E. The Design of Walls, Bins and Grain Elevators. New York: The Engineering News Publishing Company. 1907.

Pittsburgh, Cincinnati, Chicago and St. Louis Railroad Company. First Annual Report for the year ended December 31, 1917. Office of the Secretary, Pittsburgh, Pa. 1918.

Pittsburgh, Cincinnati, and St. Louis Railroad Company. Sixteenth Annual Report for the year ending 1883. Philadelphia: Review Printing House. 1884

Pittsburgh Press Club. Prominent Men of Pittsburgh and Vicinity: Members of Pittsburgh Press Club 1912-1913. Pittsburgh. 1913.

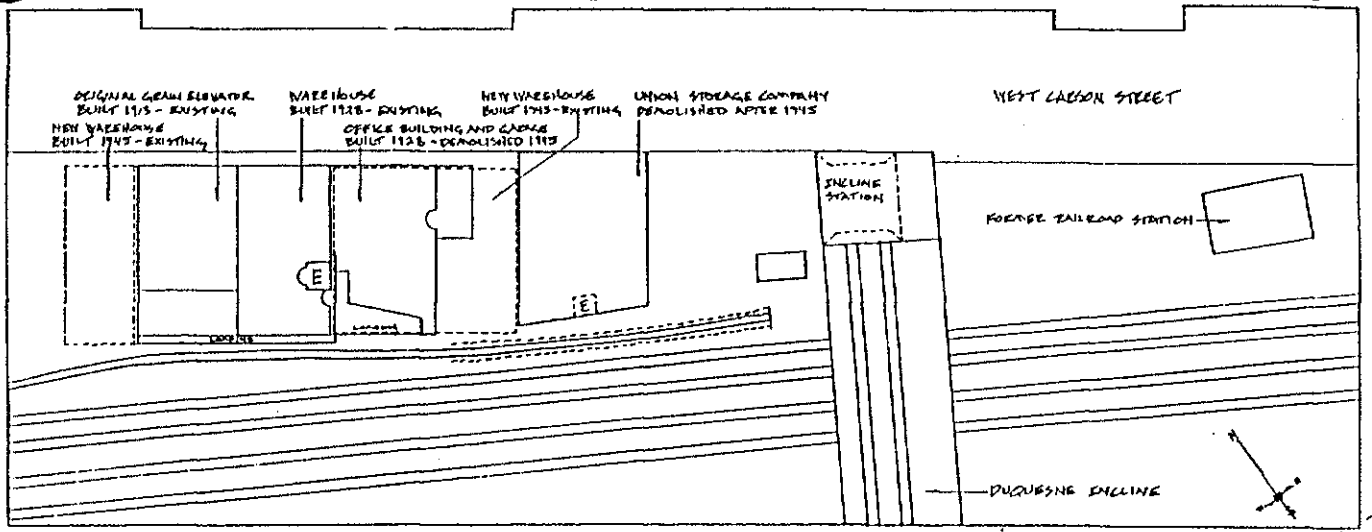
Ryan, William Jr. Jesse C. Stewart Company. Telephone interview by author. June 16, 1995; July 6, 1995

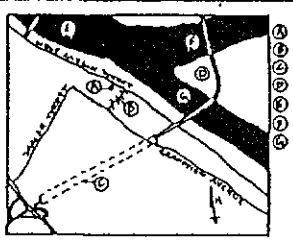
Sanborn Insurance Company. Pittsburgh. New York: Sanborn Insurance Company. 1884.

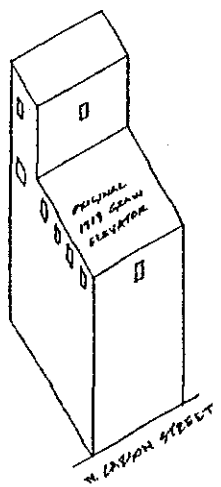
Sanborn Insurance Company. Pittsburgh. New York: Sanborn Insurance Company. 1893.

Sanborn Insurance Company. Pittsburgh. New York: Sanborn Insurance Company. Vol. 8. 1924.

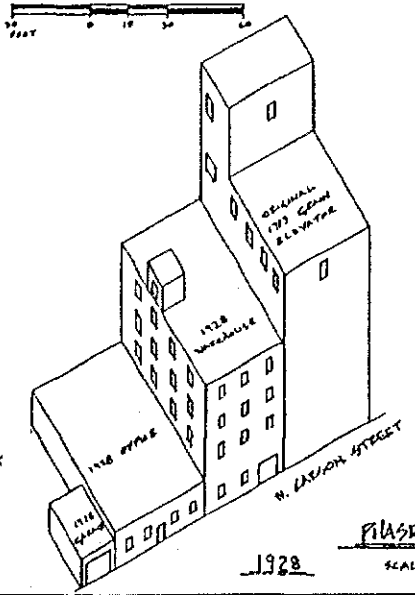
STEWART GRAIN ELEVATOR



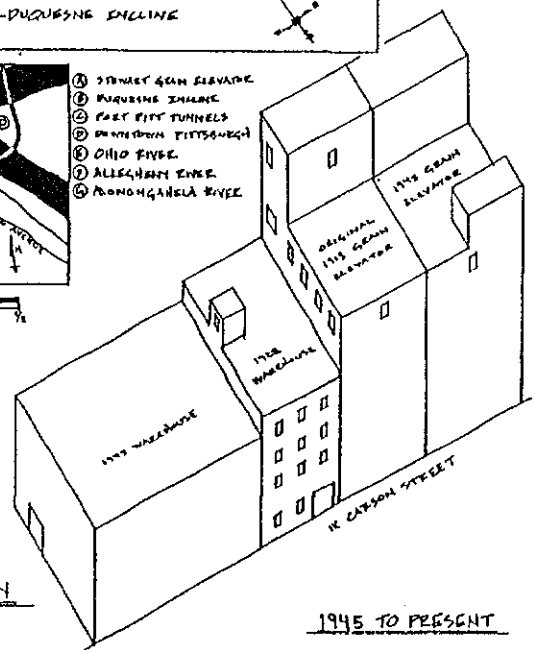




1913



1928



1945 TO PRESENT

PHASES OF CONSTRUCTION

SCALE:
FEET

JUNE 1995

CHRISTINE DAVIS CONSULTANTS

DRAWN BY RAY SEE